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ABSTRACT

This student learning guide contains one module for completing a course in building maintenance. It is designed especially for use in secondary schools in Palm Beach County, Florida. The module covers one task, and consists of a purpose, performance objective, enabling objectives, learning activities keyed to resources, information sheets, student self-check with answer key, performance test, instructional resources, and knowledge test. The module covers painting maintenance, including applying paint, varnish, and shellac. (KC)

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STUDENT LEARNING GUIDE

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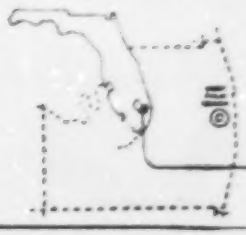

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OF PALM BEACH COUNTY, FLORIDA

DUTY | TASK | PREREQ | DEPT. | PROG. | REVISED

PROGRAM: BUILDING MAINTENANCE

DUTY: 7 PERFORMING PAINTING MAINTENANCE

TASK: 0 3 Apply Paint, Varnish, Shellac

PURPOSE:

As a building maintenance person you must be able to apply paint in order to finish most jobs. Jobs in woodworking, metal, and concrete all require painting.

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DUTY | TASK | DEPT | PROG

PERFORMANCE OBJECTIVE:
(Include condition, performance, and standard)

GIVEN:

access to paint, supplies, and a project,

YOU WILL:

apply paint, varnish, shellac.

HOW WELL:

You must successfully complete the Knowledge Test.

Your performance will be assessed by your instructor using the Performance Test.

ENABLING OBJECTIVES:

1. Identify types of paint, varnish, shellac.
2. Prepare for painting, varnishing, shellacking.
3. Practice applying paint, varnish, shellac.

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LEARNING ACTIVITIES FOR ENABLING OBJECTIVE | 1 | number | PAGE 4 OF 28

OBJ
TASK
ENAB. OBJ.
DEPT.
PROG.

Enabling objective

Identify types of paint, varnish and shellac.

PROCEDURE

LEARNING ACTIVITIES	RESOURCES
1. Read Resource No. 1 to identify the kinds of paint.	1. Instruction Sheet enclosed, Kinds of Paint
2. Read Resource No. 2 to identify the different colors of paint.	2. Instruction Sheet enclosed, Color
3. Complete the Self-Check. Have your instructor check your work.	3. Self-Check enclosed.
4. Go on to Enabling Objectives No. 2.	

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Kinds of Paint

The majority of paints, in more common use, belong in one of the following categories.

Oil-base Paints

Oil-base paints include a great many of the products on the average dealer's shelves such as house paints, wall paints, floor paints, metal protective finishes, primers, etc., even though some of them may also be referred to as alkyds. In other words, all products containing linseed, china wood, soya bean, or any other kind of a natural oil could be referred to as oil-base paints.

Alkyd-resin Paints

In recent years, paint chemists have replaced the oils in many paints with alkyd-resin formulations. While the alkyds are most generally associated with enamels and wall finishes, many exterior paints are now made with an alkyd base. These paints have faster, more positive drying characteristics and provide a harder film than do their linseed oil counterparts.

Water-thinned Paints

There are many kinds of paints thinned with water, and these are used for a wide variety of purposes.
Casein and other protein-type paints were used extensively a few years ago on interior walls, plaster, and woodwork because of the relatively low cost, good covering qualities, and fast drying properties. Casein paint has lost favor because it is not as washable as some other paints and may mildew if applied to damp walls.

Emulsion paints are made by mixing or emulsifying various types of resin, oil, varnish, and lacquer so that they can be thinned with water. They are practically odorless and dry quickly.

Cement-water paints contain cement, pigments, waterproofing agents, and chemicals to promote a durable bond of the film to the surfaces of stone, brick, and stucco and to minimize surface brittleness. Best results are obtained by dampening the surface to be painted in order to aid the chemical reaction between the water and cement.

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Calcimine comes in powder form ready to be mixed with water. It is a combination of chalk and glue and is the cheapest interior coating made. Its popularity has declined, however, because of its tendency to flake, rub off, water spot, and prevent succeeding coats from forming a secure bond to the surface.

Enamels

Great progress has been made in recent years in the formulation of enamels. Originally, enamels were made by combining pigments with a varnish like vehicle and were high-gloss sheens with excellent beauty, washability, and durability.

Most of the present high-grade enamels are formulated with an alkyd-resin vehicle. These enamels were first developed as refrigerator finishes and are still widely used for this purpose.

In no other field of paint research have manufacturers made more progress than in the development of synthetic enamels. If this research continues, even greater progress is in the offing. Therefore, you should watch constantly for new trends in the paint industry in regard to enamels.

Lacquers are the fastest drying of all finishes and are available either as clears or as colors when pigmentized. They are widely used in the automotive and industrial fields. They are used by homeowners primarily in the clear form in place of varnish or shellac.

Immediately after World War I, automobile manufacturers took as long as thirty days to apply from five to nine coats of material to each car, with time for it to dry and be rubbed down after each coat. Since the production of cellulose nitrate lacquer by the paint industry, the lacquering of automobiles has become a speedy, efficient, and high quality job.

Stains

Stains are applied to bare wood to bring out the natural beauty of the wood grain or to equalize the color of different woods. Two kinds of stains are most commonly used.

The aniline stain or dye is made from coal tar and is used generally by manufacturers of furniture and wooden specialities. These stains lend themselves to a quick staining, dyeing or blending of shades in wood used in mass production. They penetrate deeply and dry quickly.

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The second kind of stain is an oil stain that contains regular paint pigments. Oil stains are more fade-resistant and are sometimes classed as "wiping stains." They are easy to use and have particular appeal to the amateur finisher.

Varnishes

Varnish has been described as a "tinted window." The main purpose of using varnish is to produce a hard, tough, glossy, transparent film on furniture, woodwork, and floors and still let the natural grain of wood show through. It protects and glamorizes wood.

Oleoresin varnish is a cooked mixture of drying oils and resins, reduced with a volatile liquid thinner with driers added to speed up hardening. Other natural gums are used in making a quick drying finish for added gloss to paper labels and miscellaneous cardboard for making signs and displays.

Spirit resin varnish is a solution of resin in a volatile liquid that evaporates and leaves a coating of resin or gum. Shellac varnish is the most common of this type.

Varnish makers, faced with the exhaustion of natural resin supply, developed synthetic resins by using many new chemical compounds. In certain characteristics, these synthetic resins surpass the natural ones. Greater toughness, hardness and color retention came with synthetic resin. Synthetic resin first came to the attention of the general public with the introduction of four-hour drying finishes. While there are many types of varnishes, the ones most popular and most generally sold are for use on floors and interior woodwork and for marine use.

Industrial varnishes are a large family of finishes, most of which are baked or cured in infrared ovens or by induction heating to speed drying time and produce a hard, tough finish. This includes transparent and colored finishes for both interior and exterior use. For example, plow handles, miscellaneous garden and field tools, rakes, hoes, axes, hatchets, baseball bats, the wood parts of farm equipment, tractor-trailers, combines, and drills are finished with industrial varnish.

Shellac

Shellac is much like varnish in many respects. Its main advantage is its quick drying, but a disadvantage is that it is not waterproof-it water spots easily unless protected with wax or varnish. It is often used as a sort of primer for varnish.

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Color

People who buy paint for its beauty and color far outnumber those who buy it for its plain utility.

Color often influences what people want of the things that are produced and sold in this country. No one can even begin to guess how much of an effect color has had in raising our standard of living. The paint industry is a fountainhead of this growing color activity.

Perhaps back in early school days the art teacher explained the color wheel, an ingenious device designed by Sir Isaac Newton in the seventeenth century. He took the seven spectrum colors you see when looking through a prism at light and arranged them in a circular form. The colors seen in a rainbow are red, orange, blue, yellow, green, indigo, and purple. Later, a color wheel with six basic colors was introduced that omitted indigo.

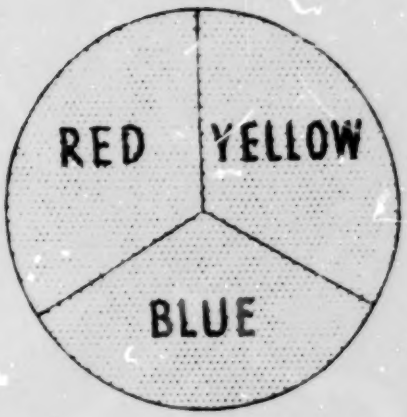

Figure 1

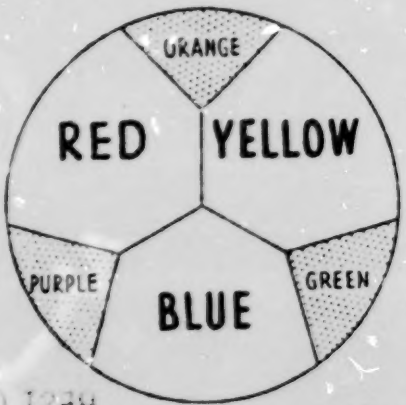

Figure 2

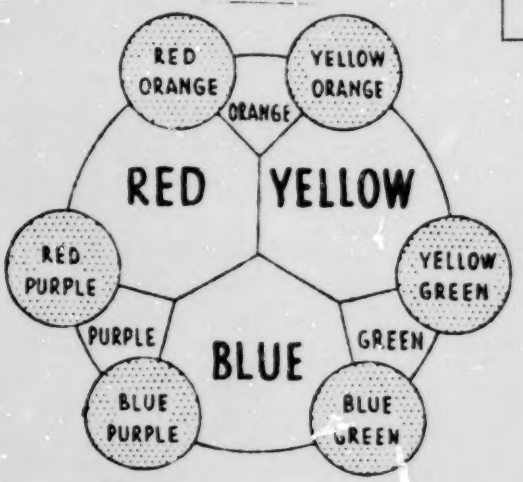

Figure 3

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The three primary colors-red, yellow, and blue-are the positive basic colors of pigments or paints. See Figure 1.

In Figure 2, three secondary colors have been added. This is a simple process. Mix blue with red to get purple; yellow with red produces orange; blue with yellow makes green. This is a more practical color wheel, but still does not offer enough colors for you to start combining your own correct color schemes.

In Figure 3, the number of colors on the second color wheel has been doubled. This color wheel has twelve colors that were made simply by adding six more intermixes, the tertiary colors. The twelve colors shown thus far are full strong colors and are referred to as pure hues. Notice that white and black are not included in this color chart. However, in the paint industry, black and white are considered as colors.

When white is added to one of these twelve hues, a tint, or a lighter color value, is obtained. For example pink is a tint of red, being a mixture of red and white. If black is mixed with one of these twelve colors, you get a shade, or a darker color value also.

Example

Length: 2 sides, 40 feet long.....80 feet
Width: 2 sides, 20 feet long.....40 feet
Total distance around.....120 feet
Multiply by average height plus 2 feet.....15 feet
Total square feet..... 1,800

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DIRECTIONS:

Evaluate your knowledge by answering the items below on a separate sheet of paper.

1. Name eight categories into which the majority of paints can be classified.
2. Name three natural oils that are used in oil-base paints.
3. In recent years, paint chemists have replaced the oils in many paints with alkyd-resin formulations. Describe the characteristics of paints in this category, as compared to their linseed oil counterparts.
4. Name four paints that belong in the water-thinned category.
5. Describe emulsion paints.
6. What are the disadvantages of casein and other protein-type paints.
7. What ingredients are contained in cement-water paints?
8. What vehicle is used to formulate most high-grade enamels?
9. A color wheel consists of twelve colors. What are the three primary, or base, colors?
10. Which colors of a color wheel are known as complementary colors?
11. Explain the meaning of a triad, and give the location of these colors on a color wheel.
12. What colors are always present in any triad combination?
13. What two kinds of stains are most commonly used for staining wood?
14. What is the purpose of varnish?
15. Shellac is often used as a primer for varnish. What is its main advantage when it is used as a finish? What is its main disadvantage?

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DUTY | TASK | EN. OBJ. | DEPT. | PROG.

Enabling objective

Prepare for painting, varnishing, shellacking.

PROCEDURE

LEARNING ACTIVITIES	RESOURCES
1. Read Resource No.1 identifying how to estimate the amount of paint.	1. Instruction Sheet enclosed, Estimating the Amount of Paint Needed
2. Read Resource No. 2 identify the steps in preparing the surface.	2. Instruction Sheet enclosed, Preparing the Surface
3. Read Resource No. 3 identify how to apply paint.	3. Instruction Sheet enclosed, Applying the Paint
4. Complete the Self-Check.	4. Self-Check enclosed.

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Estimating the Amount of Paint Needed

If the under coater covers approximately 450 square feet per gallon, divide 1,800 by 450, resulting in 4 gallons needed for priming. For the topcoat, if the house paint you handle is said to cover 500 to 600 square feet, divide 1,800 by 500, which gives an approximate requirement of 4 gallons.

Table 1
APPROXIMATE PAINT COVERAGE

Surface	Approximate Coverage* (square feet per gallon)	
	First Coat	Second Coat
Frame siding	500	550
Shingle siding	340	420
Shingle roof	150	250
Brick	200	400
Cement block	180	240
Medium texture stucco	150	360
Asbestos wall shingles	180	400

SOURCE: National Retail Hardware Association

* These figures are provided merely to show that paint quantity can be estimated only when you know the type and condition of the surface.

The figures in table 1 show why some estimates are considerably wrong. A gallon of house paint, for example, will not cover 550 feet of shingle siding. To obtain a really accurate estimate, you must know the surface that you are going to paint.

As you have probably noted, doors and windows have not been taken into account. Unless a window or door is 100 square feet or larger, it should not be subtracted from the wall area because the saving is negligible. However, if the windows are exceptionally large, or if the house has an unusually large number of them, you may allow for them by subtracting the sq square feet they occupy from the wall area.

When you have absorbed these points, you will be in a position to estimate the amount of paint needed for the exterior of a house. For experience, measure your own home just to get the feel of estimating.

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Estimating the interior of a house presents nothing new. You still multiply the length by the height to get the wall area. The only new things to consider are ceilings and floors.

A good estimate requires knowing the type of surface to be painted-for example, is it wood, metal, brick, plaster, wallboard, or cement blocks? Is it new or old, smooth or rough? When was it last painted, and what type of paint was used? Surfaces differ a great deal, even with the same paint on the same kind of material. Although wood siding may appear the same at a distance, a close examination may reveal that parts of the house are porous and will soak up paint like a sponge, while other parts of the house are hard and smooth and will require little paint. It is important to remember that some surfaces act like blotters, while some seem scarcely able to hold a coat of paint.

By now you know some of the things necessary to make a thorough estimate for a painting job:

1. Type of surfaces
2. Condition of surfaces
3. Types of products needed
4. Number of coats needed
5. Measurements of surfaces

Though it is impossible to provide a comprehensive set of rules to guide you on estimating paint jobs, these general observations may be of some help. In estimating for the interior of a home, remember that rough plaster takes more paint than does smooth cement. For example, under average conditions you can expect to cover 350 to 400 square feet per gallon of a wood surface with the first coat and 500 to 550 square feet per gallon on the second coating. On cement, a gallon of paint will cover 425 to 475 square feet per gallon for the first coat and about 600 square feet on the second coating. Naturally, coverage figures vary with individual products.

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Preparing the Surface

It is good insurance to thoroughly clean every interior surface with turpentine. The surface should be washed with a cloth completely saturated with the solvent and wiped dry with a clean dry cloth. The painter should read the label on the paint container so that he can get the maximum benefit from the manufacturer's knowledge. After the container has been opened, the paint should be stirred with a flat paddle. A flat paddle is necessary to start the pigment whirling through the paint from the bottom to the top to mix it thoroughly. A round object -such as a chair rung, pencil, or screwdriver-will not mix the paint properly. The paint can be mixed in a professional manner with a mechanical mixer.

The painter should have solvent or thinner and rags on hand to clean up spatters. The solvent may be turpentine or mineral spirits for conventional oil paint or varnish. Only odorless thinner or water should be used for latex paint or water-emulsion paint. Alcohol must be used for shellac and regular lacquer thinner for lacquer. These same solvents should be used to thin the paint, lacquer, varnish, or shellac. However, too much thinner will cause the coat to be too thin, which will lessen its covering features and durability. In other words, adding too much thinner will cause the paint to brush easier, but the result is a thin and short-lived paint film. All of the solvents mentioned, except water and many paints and varnishes, are flammable. To be safe, the painter should make sure that the painting area is well ventilated.

Before mixing and using paint, you should read the label on the paint container and follow the instructions recommended by the manufacturer. This should be done each time you receive a new shipment of paint because the labels change as new improvements are made at the factory. Remember that it is especially important that paints not be thinned beyond the recommendation given on the label.

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Applying the Paint

Exterior Walls

Because exterior walls are subject to severe weathering, it is well to devote a little extra effort to preparing the surface prior to painting.

Scaling paint should be scraped. Putty knives and stiff wire brushes do the job well. Fill cracks and holes with putty, dust off all dirt and dust, and apply a first coat. It is wise to start at the top, doing the areas requiring a ladder first.

Wall brushes are usually 3 to 5 inches wide. Brush the paint well into the surface so that protection will be deep-seated and permanent. Use 2-inch or 2 1/2-inch brushes for trim work. Remember to apply a prime coat to bare metal or new wooden surfaces before brushing on a finish coat. The addition of a small quantity of citronella or wintergreen to exterior paint will repel insects until the paint is dry.

Brick, stone, concrete or stucco walls can be easily painted with brushes bristled with nylon. Nylon is more than tough enough to withstand the severe abrasive action encountered from these surfaces. Under these severe conditions, nylon holds up well and is not affected by alkali.

Ceilings

Paint the ceiling before the walls. Brushes in sizes up to 6 inches can be used. Do not dip too deeply as the excess paint will flow back down the handle when you are painting overhead. Work back into wet areas to avoid lap marks.

Interior Walls

Brushes are available for interior walls in sizes of 3 to 6 inches. A 4-inch brush is most popular, however. (Be sure to wash the surface with a good household detergent and dry it thoroughly before painting.) Start painting by using a sweeping, fanning motion and always work back toward wet areas to avoid lap marks.

Window Sash and Narrow Areas

Oval or fat sash brushes in 1-, 1 1/2-, or 2-inch sizes are suitable for window sash and narrow areas. Angular trim sash brushes are also proving to be very popular for this purpose. If you use a good brush that has been properly tipped, flagged, and trimmed, you should be able to paint a fine, clear-cut line, and wiping excesses will be unnecessary.

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Molding, Baseboards, and Trim

Paint woodwork and trim last. Use an oval trim or enamel brush. The most useful size for this job is about 2 inches wide, although some 1 1/2-inch and 2 1/2-inch brushes are used for this job.

Cement Surfaces

Flattening, semidutch, full dutch, or flat calcimine brushes 4 inches wide or wider are best for the job. Wash the brush occasionally while painting to prevent excessive cake formation in the heel of the brush.

Furniture and Small Flat Surfaces

Take off all knobs, attach them to a piece of cardboard, and paint them with a small brush.
If a large tack is inserted into the ends of the furniture legs, it will lift the legs off the floor and allow you to paint from top to bottom easily. Use a flat varnish or enamel brush from 1 1/2 to 3 inches is size. Start from the center or flat area and brush outward. Use a small brush for edges.
Unpainted furniture should have a sealer coat applied. After the sealing coat has been allowed to dry, sandpaper lightly with double "zero" paper. Clean and apply undercoat. Let it dry twenty-four hours and sand lightly again. Use the tip of the bristles to apply the finish coat with light, smooth strokes. For radiators use a narrow, long-handled brush. Do not paint while the radiator is hot. Work from the inside out and from the top down. Do not load the brush too heavily, and you will prevent dripping.

Observe the following rules when painting with a brush.

1. Never "ride" the paintbrush. A heavy forcing stroke does not distribute paint properly and ruins the brush.

2. Don't poke or jab a large brush into the corners. Cut in around corners with a trimmer, the brush especially designed for the job.

3. Keep the brush from "fingering". Most fingering is caused by painting with the brush edgewise and by hardening of the paint in the heel of the brush.

4. Don't let your brush "fishtail" by painting pipes or other round objects with the incorrect brush. This causes the bristles in the center of the brush to wea..

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5. Never store the brush with the tips resting on the bottom of the can. This makes the brush lose its shape.

6. Do not store a brush in water. The plugs absorb water, and the bristles tend to "flare out" and become bushy.

7. When using rubber- or water-base paints, rinsing the brush with a soap and water solution before painting makes the cleaning job easier.

Applying Latex Wall Paint

Two special characteristics of latex paint are immediately recognized when it is used. First, it is easy to apply. Second, it is easy to clean up. Merely take the brush or roller to the water faucet and wash it clean as you wash your hands with soap and water. It only takes a couple of hours to paint the walls of a bedroom. You learn most about applying latex paints in the shortest time possible by painting the walls of a room at home.

One of the best suggestions ever made about applying latex paints is to apply it generously- as if it were free. Invariably, when latex paints are brushed out thin, the surface will not be uniform. It will not be as rich in color nor as velvety in sheen as it would if it were applied generously and evenly.

A drop cloth should be laid down in the room where painting is to be done to protect furnishings.

Of first importance is the matter of getting ready to paint. Examine the condition of the walls. Usually, there is dust that needs to be wiped away with a cloth. If there are some cracks in the walls, have patching plaster, a putty knife, and sandpaper on hand. When the walls are ready to paint, dip the brush about halfway into the latex paint. To remove excess paint, tap the brush gently against one side of the can and then the other. The excess paint is only that which might drop on the floor. Here again, paint with paint, not with a dry brush. Latex paints are so easy to apply that brush strokes can be made in almost any direction. Level the surface out gently with the tip of the brush by brushing from the unpainted into the freshly painted area.

When painting with a roller, roll it from the dry end of the tilted tray directly into the edge of the pool of latex paint. Do this two or three times until the roller is evenly covered, and you are prepared to paint.

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Use the roller in up-and-down strokes. Then smooth it out by cross rolling from the unpainted into the painted area. This is a sure way to get an even finish and to prevent "edges". However, with just a little care, the up-and-down strokes alone result in a smooth, even finish. In no time at all, the brushes and rollers can be washed and put away.

Applying Enamel

Until recent years, it was extremely hard to apply enamel without runs and sags. It meant undercoats, split coats (enamel and undercoats mixed together), and sometimes two finish coats. It meant disrupting the home for one or two weeks. Today, however, a complete two-coat enamel job can be done without worry.

To prepare the surface for enameling, wipe off dust with a dry cloth or remove wax and grease with any good household cleaner. Kitchens require a good cleaning because of the natural tendency of cooking fats to form a greasy film on the walls and ceilings.

High-gloss surfaces should be dulled by sanding before applying enamels. Fill cracks and nail holes, and then prime or touch each spot lightly with enamel.

Be sure to cover floors and furniture to protect them from spatter.

Modern enamel comes ready for use. Merely open the can and stir for the bottom with a flat paddle with a lifting motion.

A brush from 2 to 2 1/2 inches in width is right for enameling woodwork. Walls in the kitchen or bathroom require a 4-inch brush. For this type of job, you should dip about one-third of the bristle length into the enamel, tap the excess enamel off on the side of the can, and proceed to paint. A really fast way to apply enamel on kitchen walls and woodwork is by using a roller. The room may be redecorated with one coat unless the color change is too drastic. The enamel may be applied in the same manner on both the walls and the woodwork. The roller provides an atractive stipple finish for the walls, and then a brush is used immediately after application on the woodwork. Just a quick stroke with the tip of the brush will smooth out the enamel on the woodwork, making a slight, but attractive, difference in the appearance of the walls and woodwork.

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Applying Textured Finishes

On previously finished walls in good condition, getting a stipple or a finish showing a design is simple. You apply texture paint of a heavy consistency with a brush. A 5- or 6-inch brush is preferable, although a 4-inch brush may be used. A uniform coat is brushed on the wall a portion at a time (in approximately 3-foot sections from the ceiling to the floor), and then a stipple roller is quickly rolled over the surface, automatically leaving a stipple. This operation is continued until each wall of the room is finished. In a small room usually one person can apply the paint and use the stipple roller; in a large room two people working together can complete the task in a short time.

If the wall to be painted is new wallboard, all joints should first be carefully filled and sanded. This calls for joint fillers such as patching plaster or spackling compound, tape, sandpaper, brush roller, and texture paint. A complete room can be finished in a day.

Applying Stains

Wood surfaces should be sanded with the grain and never across it to avoid disfiguring scratches in the wood. Oil stains are specially formulated for inside and outside use on new mahogany finish. The surface to be stained should be prepared in the same manner as for painting or enameling. Apply the oil stain directly to the wood with a soft brush, and wipe with a clean cloth to bring out the highlights of the wood. The depth of color can be controlled by the amount of stain wiped off.

There are approximately twenty different kinds of wood used in floors, woodwork, and furniture, and the same oil stain gives a different effect on each of these. Naturally, if the wood is dark, the stain looks darker than when applied to light wood. Also, if the wood is porous, the stain goes deeper than if used on nonporous wood.

The next step in wood finishing is filling. Open-grained woods such as oak, walnut, and mahogany should be filled with paste wood filler that has been tinted with oil stains or with regular paint and enamel tinting colors. Before being varnished, some stains must be sealed with a coat of shellac to prevent the color from bleeding through the varnish coat.

People want different effects from varnish. Some want a high gloss; others want a dull or satin finish. By reading the directions you can choose the right product. Varnish should never be brushed on too thin and should be applied with starting and finishing strokes following the grain of the wood.

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A 3 inch, soft bristle flat brush is best for floors, while a 2 or 2 1/2 inch soft brush should be used for furniture. Never apply varnish over wax. The varnish cannot dry properly, and the wax prevents the varnish from giving a satisfactory bond to the paintable surface. Of course, you can varnish over a previously waxed surface after a first-class job of removing the wax with solvent.

Varnish stain, another transparent finish, allows the application of both stain and varnish in one operation. It dries to a high gloss finish. A dull, hand-rubbed effect can be obtained with a final coat of dull or satin varnish.

Should you want to change the original stain of the wood, you will have to use a good commercial bleach or a solution made with oxidic acid. However, bleaching solutions are effective only after the varnish or lacquer surface coat or coats have been removed. After the surface has been bleached, the wood may be finished in the regular way.

Applying the Paint

First Dipping

After the can of paint has been opened and stirred, dip the brush into the paint to about half the length of the bristles. Do not wipe the paint off on the edge of the can. This will wear out the bristles and make painting more difficult. You cannot paint with a dry brush-you must paint with paint. A brush is made to hold paint. Merely tap the brush lightly on the inside of the can, once on one side and then on the other, so that paint does not drop from it.

The following procedure is recommended as the proper one for dipping a paint brush the first time.

1. Dip brush bristles halfway into the paint.
2. Work paint into the center of the brush by working against the edge of the can.
3. Load and unload the brush (repeat steps 1 and 2) several times.
4. Tap off the paint drippings against the sides of the can, but do not draw the brush edgewise across the lip of the can. This causes any brush to "finger".
5. Do not wipe an excessive quantity of paint from the side of the brush after dipping.

When plenty of paint is on the surface of the selected area, smooth it out with two or three light strokes with the tip of the brush. This eliminates brush marks and makes the paint film more uniform.

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To get the best results from any brush, it should be properly broken in before painting is started. Most painters advise that it is best to hold a brush loosely and not to grip it as if you were hanging from a tree limb. An easy grip makes less work for your hand. It is also important not to over load the brush with paint as this will cause leaking and spattering and will make the heel of the brush difficult to clean. When painting, a free and easy, back-and-forth motion is best.

The Correct Painting Stroke

Except where inconvenient, grip the brush on the metal ferrule with the handle between the thumb and forefinger. Use a long, steady, even stroke, lifting the brush gradually at the end of the stroke to feather out the edge. Always paint toward and into the surface previously coated. This eliminates shadows and brush marks when the paint dries. Smooth over a surface after several brushfuls by stroking lightly with the tips of the bristles.

On flat walls use fanning strokes; on exterior wood use a firm grasp and work the paint in. Daub in several close spots, then brush out. On floors and furniture, flow the paint on with smooth, light strokes. Finish in one direction.

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DIRECTIONS:

Evaluate your knowledge by answering the items below on a separate sheet of paper.

1. What should be the first thing that a painter does before he opens a container of paint?
2. Why should paint be stirred with a flat paddle instead of a round object?
3. After the surfaces have been prepared and before the painter opens the paint container, what precautionary preparation should the painter take?
4. What will be the result if too much thinner is added to paint?
5. All of the solvents except water and many paints and varnishes are flammable. What safety precaution should the painter take before using these flammable materials?
6. List five steps in the procedure for the correct first dipping of a paintbrush.
7. Except where it is inconvenient, how should a painter grip a paintbrush?
8. Explain the proper method for applying paint with a brush.
9. List seven rules to remember when painting with a brush.
10. How should latex paint be applied?
11. Describe the procedure for loading a roller with paint.
12. How should a roller be used to apply paint?
13. Enamel is usually applied with a brush, but it may be applied with a roller, which will provide an attractive stipple finish. What procedure should be followed if a roller is used and the stipple finish is not desired?
14. Why should wood surfaces be sanded with the grain?
15. How should oil stains be applied to wood, and how can the depth of color be controlled?

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LEARNING ACTIVITIES FOR ENABLING OBJECTIVE [3] number

DUTY | TASK | EN. OBJ. | DEPT. | PROG.

Enabling objective:

Practice applying paint, varnish and shellac.

PROCEDURE

LEARNING ACTIVITIES	RESOURCES
1. Using Resource No. 1 practice applying paint, varnish, or shellac.	1. a. Job Plan Sheet b. Supplies
2. Complete the Self-Check.	2. Self-Check enclosed.
3. When you think you can perform this task, take the Performance Test.	3. Performance Test

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SELF-CHECK FOR ENABLING OBJECTIVE 3 (number) PAGE 24 OF 28

DUTY | TASK | EN. OBJ. | DEPT. | PROG.

DIRECTIONS:

Evaluate your work by answering the items below on a separate sheet of paper.
All items should receive a "YES" response.

	YES	NO
1. Were safety goggles worn?.....	_____	_____
2. Was paint mask worn?.....	_____	_____
3. Was area free of fire hazards?.....	_____	_____
4. Was area set up to allow for ventilation?.....	_____	_____
5. Was ladder or scaffolding selected to suit the job?.....	_____	_____
6. Were brushes, roller, and supplies assembled?..	_____	_____
7. Were directions on paint containers read?.....	_____	_____
8. Were loose particles or flaked paint removed?..	_____	_____
9. Was surface sanded, steam cleaned or scraped depending on the type of paint?.....	_____	_____
10. Were brush bristle dipped halfway into the paint?.....	_____	_____
11. Was paint worked into the center of the brush working against the edge of the can?.....	_____	_____
12. Was the brush loaded and unloaded several times repeating Steps 10 and 11?.....	_____	_____
13. Were paint drippings tapped off against the side of the can, without drawing the brush edgewise across tne lip of the can?.....	_____	_____

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14. Was paint applied in either vertical or horizontal motion depending on the surface?..... ____ ____

15. Were runs smoothed out with the tip of the brush or flattened by roller?..... ____ ____

16. Was sealer applied when required?..... ____ ____

17. Was work area cleaned?..... ____ ____

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PERFORMANCE TEST FOR ☐ ☐☐

duty task number

DUTY | TASK | ATTEMPT | STUDENT | DATE | ☐ Attained ☐ Not attained | EVALUATOR | DEPT. | PROG.

DIRECTIONS:

Given access to paint, supplies, and a project, you will apply paint, varnish or shellac. You will be evaluated for attainment of this task based upon the items listed below.

PERFORMANCE STANDARDS ALL ITEMS MUST BE MARKED YES FOR ATTAINMENT	YES	NO
1. Were safety goggles worn?		
2. Was paint mask worn?		
3. Was area free of fire hazards?		
4. Was area set up to allow for ventila.ion?		
5. Was ladder or scaffolding selected to suit the job?		
6. Were brushes, roller, and supplies assembled?		
7. Were directions on paint containers read?		
8. Were loose particles or flaked paint removed?		
9. Was surface sanded, steam cleaned or scraped depending on the type of paint?		
10. Were brush bristle dipped halfway intc the paint?		
11. Was paint worked into the center of the brush working against the edge of the can?		
12. Was the brush loaded and unloaded several times repeating Steps 10 and 11?		
13. Were paint drippings tapped off against the side of the can, without drawing the brush edgewise across the lip of the can?		

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PERFORMANCE TEST FOR ☐ ☐☐

CONTINUED duty task number

DUTY | TASK | ATTEMPT | STUDENT | DATE | ☐ Attained ☐ Not attained | EVALUATOR | DEPT. | PROG.

PERFORMANCE STANDARDS

ALL ITEMS MUST BE MARKED YES FOR ATTAINMENT	YES	NO
14. Was paint applied in either vertical or horizontal motion depending on the surface?		
15. Were runs smoothed out with the tip of the brush or flattened by roller?		
16. Was sealer applied when required?		
17. Was work area cleaned?		

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DUTY | TASK | DEPT. | PROG.

No additional resources required.

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